

Sequence Listing

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: Presta, Leonard G.
Shelton, David L.
Urfer, Roman

(ii) TITLE OF INVENTION: Human trk Receptors and Neurotrophic Factor Inhibitors

(iii) NUMBER OF SEQUENCES: 41

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Knobbe, Martens, Olson & Bear
(B) STREET: 620 Newport Center Drive 16th Floor
(C) CITY: Newport Beach
(D) STATE: California
(E) COUNTRY: USA
(F) ZIP: 92660

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: WinPatin (Genentech)

(vi) CURRENT APPLICATION DATA

(A) APPLICATION NUMBER: 09/724,524
(B) FILING DATE: 27-NOV-2000
(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 09/156,923
(B) FILING DATE: 18-SEP-1998
(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 08/359,705
(B) FILING DATE: 20-DEC-1994
(C) CLASSIFICATION:

(viii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 08/286846
(B) FILING DATE: 10-AUG-1994

(viii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 08/215139
(B) FILING DATE: 18-MAR-1994

(ix) ATTORNEY/AGENT INFORMATION:

(A) NAME: Dreger, Ginger
(B) REGISTRATION NUMBER: 33,055
(C) REFERENCE/DOCKET NUMBER: GENENT.33CP2C2

(x) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: 949/760-0404

(B) TELEFAX: 949/760-9502

(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3194 base pairs

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(ii) MOLECULE TYPE: nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GGAAGGTTTA AAGAAGAAGC CGCAAAGCGC AGGGAAGGCC TCCCGGCACG 50
GGTGGGGGAA AGCGGCCGGT GCAGCGCGGG GACAGGCACT CGGGCTGGCA 100
CTGGCTGCTA GGGATGTCGT CCTGGATAAG GTGGCATGGA CCCGCCATGG 150
CGCGGCTCTG GGGCTTCTGC TGGCTGGTTG TGGGCTTCTG GAGGGCCGCT 200
TTCGCCTGTC CCACGTCTTG CAAATGCAGT GCCTCTCGGA TCTGGTGCAG 250
CGACCCTTCT CCTGGCATCG TGGCATTTC GAGATTGGAG CCTAACAGTG 300
TAGATCCTGA GAACATCACC GAAATTTTCA TCGCAAACCA GAAAAGGTTA 350
GAAATCATCA ACGAAGATGA TGTTGAAGCT TATGTGGGAC TGAGAAATCT 400
GACAATTGTG GATTCTGGAT TAAAATTTGT GGCTCATAAA GCATTCTTGA 450
AAAACAGCAA CCTGCAGCAC ATCAATTTTA CCCGAAACAA ACTGACGAGT 500
TTGTCTAGGA AACATTTCCG TCACCTTGAC TTGTCTGAAC TGATCCTGGT 550
GGGCAATCCA TTTACATGCT CCTGTGACAT TATGTGGATC AAGACTCTCC 600
AAGAGGCTAA ATCCAGTCCA GAACTCAGG ATTTGTACTG CCTGAATGAA 650
AGCAGCAAGA ATATTCCCCT GGCAAACCTG CAGATACCCA ATTGTGGTTT 700
GCCATCTGCA AATCTGGCCG CACCTAACCT CACTGTGGAG GAAGGAAAGT 750
CTATCACATT ATCCTGTAGT GTGGCAGGTG ATCCGGTTCC TAATATGTAT 800
TGGGATGTTG GTAACCTGGT TTCCAAACAT ATGAATGAAA CAAGCCACAC 850
ACAGGGCTCC TTAAGGATAA CTAACATTTT ATCCGATGAC AGTGGGAAGC 900
AGATCTCTTG TGTGGCGGAA AATCTTGTAG GAGAAGATCA AGATTCTGTC 950
AACCTCACTG TGCATTTTGC ACCAACTATC ACATTTCTCG AATCTCCAAC 1000
CTCAGACCAC CACTGGTGCA TTCCATTAC TGTGAAAGGC AACCCAAAAC 1050

CAGCGCTTCA GTGGTTCTAT AACGGGGCAA TATTGAATGA GTCCAAATAC 1100
 ATCTGTACTA AAATACATGT TACCAATCAC ACGGAGTACC ACGGCTGCCT 1150
 CCAGCTGGAT AATCCCACTC ACATGAACAA TGGGGACTAC ACTCTAATAG 1200
 CCAAGAATGA GTATGGGAAG GATGAGAAAC AGATTTCTGC TCACTTCATG 1250
 GGCTGGCCTG GAATTGACGA TGGTGCAAAC CCAAATTATC CTGATGTAAT 1300
 TTATGAAGAT TATGGAAC TG CAGCGAATGA CATCGGGGAC ACCACGAACA 1350
 GAAGTAATGA AATCCCTTCC ACAGACGTCA CTGATAAAAC CGGTCGGGAA 1400
 CATCTCTCGG TCTATGCTGT GGTGGTGATT GCGTCTGTGG TGGGATTTTG 1450
 CCTTTTGGTA ATGCTGTTTC TGCTTAAGTT GGCAAGACAC TCCAAGTTTG 1500
 GCATGAAAGG CCCAGCCTCC GTTATCAGCA ATGATGATGA CTCTGCCAGC 1550
 CCACTCCATC ACATCTCCAA TGGGAGTAAC ACTCCATCTT CTCGGAAGG 1600
 TGGCCCAGAT GCTGTCATTA TTGGAATGAC CAAGATCCCT GTCATTGAAA 1650
 ATCCCCAGTA CTTTGGCATC ACCAACAGTC AGCTCAAGCC AGACACATTT 1700
 GTTCAGCACA TCAAGCGACA TAACATTGTT CTGAAAAGGG AGCTAGGCGA 1750
 AGGAGCCTTT GGAAAAGTGT TCCTAGCTGA ATGCTATAAC CTCTGTCCTG 1800
 AGCAGGACAA GATCTTGGTG GCAGTGAAGA CCCTGAAGGA TGCCAGTGAC 1850
 AATGCACGCA AGGACTTCCA CCGTGAGGCC GAGCTCCTGA CCAACCTCCA 1900
 GCATGAGCAC ATCGTCAAGT TCTATGGCGT CTGCGTGGAG GGCACCCCC 1950
 TCATCATGGT CTTTGAGTAC ATGAAGCATG GGGACCTCAA CAAGTTCCTC 2000
 AGGGCACACG GCCCTGATGC CGTGCTGATG GCTGAGGGCA ACCCGCCAC 2050
 GGAAGTACG CAGTCGCAGA TGCTGCATAT AGCCCAGCAG ATCGCCGCGG 2100
 GCATGGTCTA CCTGGCGTCC CAGCACTTCG TGCAACGCGA TTTGGCCACC 2150
 AGGAACTGCC TGGTCGGGGA GAACTTGCTG GTGAAAATCG GGGACTTTGG 2200
 GATGTCCCGG GACGTGTACA GCACTGACTA CTACAGGGTC GGTGGCCACA 2250
 CAATGCTGCC CATTGCTGG ATGCCTCCAG AGAGCATCAT GTACAGGAAA 2300
 TTCACGACGG AAAGCGACGT CTGGAGCCTG GGGGTCGTGT TGTGGGAGAT 2350
 TTTACCTAT GGCAAACAGC CCTGGTACCA GCTGTCAAAC AATGAGGTGA 2400
 TAGAGTGTAT CACTCAGGGC CGAGTCCTGC AGCGACCCCG CACGTGCCCC 2450
 CAGGAGGTGT ATGAGCTGAT GCTGGGGTGC TGGCAGCGAG AGCCCCACAT 2500

GAGGAAGAAC ATCAAGGGCA TCCATACCCT CCTTCAGAAC TTGGCCAAGG 2550
CATCTCCGGT CTACCTGGAC ATTCTAGGCT AGGGCCCTTT TCCCCAGACC 2600
GATCCTTCCC AACGTACTCC TCAGACGGGC TGAGAGGATG AACATCTTTT 2650
AACTGCCGCT GGAGGCCACC AAGCTGCTCT CCTTCACTCT GACAGTATTA 2700
ACATCAAAGA CTCCGAGAAG CTCTCGAGGG AAGCAGTGTG TACTTCTTCA 2750
TCCATAGACA CAGTATTGAC TTCTTTTTTG CATTATCTCT TTCTCTCTTT 2800
CCATCTCCCT TGGTTGTTCC TTTTCTTTT TTAAATTTT CTTTTCTTC 2850
TTTTTTTTCG TCTTCCCTGC TTCACGATTC TTACCCTTTC TTTTGAATCA 2900
ATCTGGCTTC TGCATTACTA TTAACCTCTGC ATAGACAAAG GCCTTAACAA 2950
ACGTAATTTG TTATATCAGC AGACACTCCA GTTGCCAC CACAATAAC 3000
AATGCCTTGT TGTATTCTG CTTTGATGT GGATGAAAAA AAGGGAAAAC 3050
AAATATTTCA CTAAACTTT GTCATTCTG CTGTACAGAT ATCGAGAGTT 3100
TCTATGGATT CACTTCTATT TATTTATTAT TATTACTGTT CTTATTGTTT 3150
TTGGATGGCT TAAGCCTGTG TATAAAAAAA AAAAAAATC TAGA 3194

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 822 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Met	Ser	Ser	Trp	Ile	Arg	Trp	His	Gly	Pro	Ala	Met	Ala	Arg	Leu
1				5					10					15
Trp	Gly	Phe	Cys	Trp	Leu	Val	Val	Gly	Phe	Trp	Arg	Ala	Ala	Phe
				20					25					30
Ala	Cys	Pro	Thr	Ser	Cys	Lys	Cys	Ser	Ala	Ser	Arg	Ile	Trp	Cys
				35					40					45
Ser	Asp	Pro	Ser	Pro	Gly	Ile	Val	Ala	Phe	Pro	Arg	Leu	Glu	Pro
				50					55					60
Asn	Ser	Val	Asp	Pro	Glu	Asn	Ile	Thr	Glu	Ile	Phe	Ile	Ala	Asn
				65					70					75
Gln	Lys	Arg	Leu	Glu	Ile	Ile	Asn	Glu	Asp	Asp	Val	Glu	Ala	Tyr
				80					85					90
Val	Gly	Leu	Arg	Asn	Leu	Thr	Ile	Val	Asp	Ser	Gly	Leu	Lys	Phe

	95	100	105
Val Ala His Lys	Ala Phe Leu Lys Asn Ser Asn Leu Gln His Ile		
	110	115	120
Asn Phe Thr Arg	Asn Lys Leu Thr Ser Leu Ser Arg Lys His Phe		
	125	130	135
Arg His Leu Asp	Leu Ser Glu Leu Ile Leu Val Gly Asn Pro Phe		
	140	145	150
Thr Cys Ser Cys	Asp Ile Met Trp Ile Lys Thr Leu Gln Glu Ala		
	155	160	165
Lys Ser Ser Pro	Asp Thr Gln Asp Leu Tyr Cys Leu Asn Glu Ser		
	170	175	180
Ser Lys Asn Ile	Pro Leu Ala Asn Leu Gln Ile Pro Asn Cys Gly		
	185	190	195
Leu Pro Ser Ala	Asn Leu Ala Ala Pro Asn Leu Thr Val Glu Glu		
	200	205	210
Gly Lys Ser Ile	Thr Leu Ser Cys Ser Val Ala Gly Asp Pro Val		
	215	220	225
Pro Asn Met Tyr	Trp Asp Val Gly Asn Leu Val Ser Lys His Met		
	230	235	240
Asn Glu Thr Ser	His Thr Gln Gly Ser Leu Arg Ile Thr Asn Ile		
	245	250	255
Ser Ser Asp Asp	Ser Gly Lys Gln Ile Ser Cys Val Ala Glu Asn		
	260	265	270
Leu Val Gly Glu	Asp Gln Asp Ser Val Asn Leu Thr Val His Phe		
	275	280	285
Ala Pro Thr Ile	Thr Phe Leu Glu Ser Pro Thr Ser Asp His His		
	290	295	300
Trp Cys Ile Pro	Phe Thr Val Lys Gly Asn Pro Lys Pro Ala Leu		
	305	310	315
Gln Trp Phe Tyr	Asn Gly Ala Ile Leu Asn Glu Ser Lys Tyr Ile		
	320	325	330
Cys Thr Lys Ile	His Val Thr Asn His Thr Glu Tyr His Gly Cys		
	335	340	345
Leu Gln Leu Asp	Asn Pro Thr His Met Asn Asn Gly Asp Tyr Thr		
	350	355	360
Leu Ile Ala Lys	Asn Glu Tyr Gly Lys Asp Glu Lys Gln Ile Ser		
	365	370	375
Ala His Phe Met	Gly Trp Pro Gly Ile Asp Asp Gly Ala Asn Pro		

380	385	390
Asn Tyr Pro Asp Val Ile Tyr Glu Asp	Tyr Gly Thr Ala Ala Asn	
395	400	405
Asp Ile Gly Asp Thr Thr Asn Arg Ser	Asn Glu Ile Pro Ser Thr	
410	415	420
Asp Val Thr Asp Lys Thr Gly Arg Glu	His Leu Ser Val Tyr Ala	
425	430	435
Val Val Val Ile Ala Ser Val Val Gly	Phe Cys Leu Leu Val Met	
440	445	450
Leu Phe Leu Leu Lys Leu Ala Arg His	Ser Lys Phe Gly Met Lys	
455	460	465
Gly Pro Ala Ser Val Ile Ser Asn Asp	Asp Asp Ser Ala Ser Pro	
470	475	480
Leu His His Ile Ser Asn Gly Ser Asn	Thr Pro Ser Ser Ser Glu	
485	490	495
Gly Gly Pro Asp Ala Val Ile Ile Gly	Met Thr Lys Ile Pro Val	
500	505	510
Ile Glu Asn Pro Gln Tyr Phe Gly Ile	Thr Asn Ser Gln Leu Lys	
515	520	525
Pro Asp Thr Phe Val Gln His Ile Lys	Arg His Asn Ile Val Leu	
530	535	540
Lys Arg Glu Leu Gly Glu Gly Ala Phe	Gly Lys Val Phe Leu Ala	
545	550	555
Glu Cys Tyr Asn Leu Cys Pro Glu Gln	Asp Lys Ile Leu Val Ala	
560	565	570
Val Lys Thr Leu Lys Asp Ala Ser Asp	Asn Ala Arg Lys Asp Phe	
575	580	585
His Arg Glu Ala Glu Leu Leu Thr Asn	Leu Gln His Glu His Ile	
590	595	600
Val Lys Phe Tyr Gly Val Cys Val Glu	Gly Asp Pro Leu Ile Met	
605	610	615
Val Phe Glu Tyr Met Lys His Gly Asp	Leu Asn Lys Phe Leu Arg	
620	625	630
Ala His Gly Pro Asp Ala Val Leu Met	Ala Glu Gly Asn Pro Pro	
635	640	645
Thr Glu Leu Thr Gln Ser Gln Met Leu	His Ile Ala Gln Gln Ile	
650	655	660
Ala Ala Gly Met Val Tyr Leu Ala Ser	Gln His Phe Val His Arg	

665	670	675
Asp Leu Ala Thr Arg Asn Cys Leu Val Gly Glu Asn Leu Leu Val 680	685	690
Lys Ile Gly Asp Phe Gly Met Ser Arg Asp Val Tyr Ser Thr Asp 695	700	705
Tyr Tyr Arg Val Gly Gly His Thr Met Leu Pro Ile Arg Trp Met 710	715	720
Pro Pro Glu Ser Ile Met Tyr Arg Lys Phe Thr Thr Glu Ser Asp 725	730	735
Val Trp Ser Leu Gly Val Val Leu Trp Glu Ile Phe Thr Tyr Gly 740	745	750
Lys Gln Pro Trp Tyr Gln Leu Ser Asn Asn Glu Val Ile Glu Cys 755	760	765
Ile Thr Gln Gly Arg Val Leu Gln Arg Pro Arg Thr Cys Pro Gln 770	775	780
Glu Val Tyr Glu Leu Met Leu Gly Cys Trp Gln Arg Glu Pro His 785	790	795
Met Arg Lys Asn Ile Lys Gly Ile His Thr Leu Leu Gln Asn Leu 800	805	810
Ala Lys Ala Ser Pro Val Tyr Leu Asp Ile Leu Gly 815	820	822

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1870 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

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GGAAGGTTTA AAGAAGAAGC CGCAAAGCGC AGGGAAGGCC TCCCGGCACG 50
GGTGGGGGAA AGCGGCCGGT GCAGCGCGGG GACAGGCACT CGGGCTGGCA 100
CTGGCTGCTA GGGATGTCGT CCTGGATAAG GTGGCATGGA CCCGCCATGG 150
CGCGGCTCTG GGGCTTCTGC TGGCTGGTTG TGGGCTTCTG GAGGGCCGCT 200
TTCGCCTGTC CCACGTCCTG CAAATGCAGT GCCTCTCGGA TCTGGTGCAG 250
CGACCCTTCT CCTGGCATCG TGGCATTTCC GAGATTGGAG CCTAACAGTG 300
TAGATCCTGA GAACATCACC GAAATTTTCA TCGCAAACCA GAAAAGGTTA 350

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GAAATCATCA ACGAAGATGA TGTTGAAGCT TATGTGGGAC TGAGAAATCT 400
GACAATTGTG GATTCTGGAT TAAAATTTGT GGCTCATAAA GCATTTCTGA 450
AAAACAGCAA CCTGCAGCAC ATCAATTTTA CCCGAAACAA ACTGACGAGT 500
TTGTCTAGGA AACATTTCCG TCACCTTGAC TTGTCTGAAC TGATCCTGGT 550
GGGCAATCCA TTTACATGCT CCTGTGACAT TATGTGGATC AAGACTCTCC 600
AAGAGGCTAA ATCCAGTCCA GACACTCAGG ATTTGTACTG CCTGAATGAA 650
AGCAGCAAGA ATATTCCCCT GGCAAACCTG CAGATACCCA ATTGTGGTTT 700
GCCATCTGCA AATCTGGCCG CACCTAACCT CACTGTGGAG GAAGGAAAGT 750
CTATCACATT ATCCTGTAGT GTGGCAGGTG ATCCGGTTCC TAATATGTAT 800
TGGGATGTTG GTAACCTGGT TTCCAAACAT ATGAATGAAA CAAGCCACAC 850
ACAGGGCTCC TTAAGGATAA CTAACATTTT ATCCGATGAC AGTGGGAAGC 900
AGATCTCTTG TGTGGCGGAA AATCTTGTAG GAGAAGATCA AGATTCTGTC 950
AACCTCACTG TGCATTTTGC ACCAACTATC ACATTTCTCG AATCTCCAAC 1000
CTCAGACCAC CACTGGTGCA TTCCATTAC TGTGAAAGGC AACCCAAAAC 1050
CAGCGCTTCA GTGGTTCTAT AACGGGGCAA TATTGAATGA GTCCAAATAC 1100
ATCTGTACTA AAATACATGT TACCAATCAC ACGGAGTACC ACGGCTGCCT 1150
CCAGCTGGAT AATCCCCTC ACATGAACAA TGGGGACTAC ACTCTAATAG 1200
CCAAGAATGA GTATGGGAAG GATGAGAAAC AGATTTCTGC TCACTTCATG 1250
GGCTGGCCTG GAATTGACGA TGGTGCAAAC CCAAATTATC CTGATGTAAT 1300
TTATGAAGAT TATGGAAC TG CAGCGAATGA CATCGGGGAC ACCACGAACA 1350
GAAGTAATGA AATCCCTTCC ACAGACGTCA CTGATAAAAC CGGTCGGGAA 1400
CATCTCTCGG TCTATGCTGT GGTGGTGATT GCGTCTGTGG TGGGATTTTG 1450
CCTTTTGGTA ATGCTGTTTC TGCTTAAGTT GGCAAGACAC TCCAAGTTG 1500
GCATGAAAGG TTTTGTTTTG TTTCATAAGA TCCCACTGGA TGGGTAGCTG 1550
AAATAAAGGA AAAGACAGAG AAAGGGGCTG TGGTGCTTGT TGGTTGATGC 1600
TGCCATGTAA GCTGGACTCC TGGGACTGCT GTTGCTTAT CCCGGGAAGT 1650
GCTGCTTATC TGGGGTTTTT TGGTAGATGT GGGCGGTGTT TGGAGGCTGT 1700
ACTATATGAA GCCTGCATAT ACTGTGAGCT GTGATTGGGG AACACCAATG 1750
CAGAGGTAAC TCTCAGGCAG CTAAGCAGCA CCTCAAGAAA ACATGTTAAA 1800

TTAATGCTTC TCTTCTTACA GTAGTTCAAA TACAAAAC TG AAATGAAATC 1850

CCATTGGATT GTACTTCTCT 1870

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 477 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Met	Ser	Ser	Trp	Ile	Arg	Trp	His	Gly	Pro	Ala	Met	Ala	Arg	Leu	
1				5					10					15	
Trp	Gly	Phe	Cys	Trp	Leu	Val	Val	Gly	Phe	Trp	Arg	Ala	Ala	Phe	
			20						25					30	
Ala	Cys	Pro	Thr	Ser	Cys	Lys	Cys	Ser	Ala	Ser	Arg	Ile	Trp	Cys	
			35						40					45	
Ser	Asp	Pro	Ser	Pro	Gly	Ile	Val	Ala	Phe	Pro	Arg	Leu	Glu	Pro	
			50						55					60	
Asn	Ser	Val	Asp	Pro	Glu	Asn	Ile	Thr	Glu	Ile	Phe	Ile	Ala	Asn	
			65						70					75	
Gln	Lys	Arg	Leu	Glu	Ile	Ile	Asn	Glu	Asp	Asp	Val	Glu	Ala	Tyr	
			80						85					90	
Val	Gly	Leu	Arg	Asn	Leu	Thr	Ile	Val	Asp	Ser	Gly	Leu	Lys	Phe	
			95						100					105	
Val	Ala	His	Lys	Ala	Phe	Leu	Lys	Asn	Ser	Asn	Leu	Gln	His	Ile	
			110						115					120	
Asn	Phe	Thr	Arg	Asn	Lys	Leu	Thr	Ser	Leu	Ser	Arg	Lys	His	Phe	
			125						130					135	
Arg	His	Leu	Asp	Leu	Ser	Glu	Leu	Ile	Leu	Val	Gly	Asn	Pro	Phe	
			140						145					150	
Thr	Cys	Ser	Cys	Asp	Ile	Met	Trp	Ile	Lys	Thr	Leu	Gln	Glu	Ala	
			155						160					165	
Lys	Ser	Ser	Pro	Asp	Thr	Gln	Asp	Leu	Tyr	Cys	Leu	Asn	Glu	Ser	
			170						175					180	
Ser	Lys	Asn	Ile	Pro	Leu	Ala	Asn	Leu	Gln	Ile	Pro	Asn	Cys	Gly	
			185						190					195	
Leu	Pro	Ser	Ala	Asn	Leu	Ala	Ala	Pro	Asn	Leu	Thr	Val	Glu	Glu	
			200						205					210	
Gly	Lys	Ser	Ile	Thr	Leu	Ser	Cys	Ser	Val	Ala	Gly	Asp	Pro	Val	

215	220	225
Pro Asn Met Tyr Trp Asp Val Gly Asn Leu Val Ser Lys His Met		
230	235	240
Asn Glu Thr Ser His Thr Gln Gly Ser Leu Arg Ile Thr Asn Ile		
245	250	255
Ser Ser Asp Asp Ser Gly Lys Gln Ile Ser Cys Val Ala Glu Asn		
260	265	270
Leu Val Gly Glu Asp Gln Asp Ser Val Asn Leu Thr Val His Phe		
275	280	285
Ala Pro Thr Ile Thr Phe Leu Glu Ser Pro Thr Ser Asp His His		
290	295	300
Trp Cys Ile Pro Phe Thr Val Lys Gly Asn Pro Lys Pro Ala Leu		
305	310	315
Gln Trp Phe Tyr Asn Gly Ala Ile Leu Asn Glu Ser Lys Tyr Ile		
320	325	330
Cys Thr Lys Ile His Val Thr Asn His Thr Glu Tyr His Gly Cys		
335	340	345
Leu Gln Leu Asp Asn Pro Thr His Met Asn Asn Gly Asp Tyr Thr		
350	355	360
Leu Ile Ala Lys Asn Glu Tyr Gly Lys Asp Glu Lys Gln Ile Ser		
365	370	375
Ala His Phe Met Gly Trp Pro Gly Ile Asp Asp Gly Ala Asn Pro		
380	385	390
Asn Tyr Pro Asp Val Ile Tyr Glu Asp Tyr Gly Thr Ala Ala Asn		
395	400	405
Asp Ile Gly Asp Thr Thr Asn Arg Ser Asn Glu Ile Pro Ser Thr		
410	415	420
Asp Val Thr Asp Lys Thr Gly Arg Glu His Leu Ser Val Tyr Ala		
425	430	435
Val Val Val Ile Ala Ser Val Val Gly Phe Cys Leu Leu Val Met		
440	445	450
Leu Phe Leu Leu Lys Leu Ala Arg His Ser Lys Phe Gly Met Lys		
455	460	465
Gly Phe Val Leu Phe His Lys Ile Pro Leu Asp Gly		
470	475	477

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2715 base pairs

(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

GGATCCGCGT CGGAGATGGA TGTCTCTCTT TGCCCAGCCA AGTGTAGTTT 50
CTGGCGGATT TTCTTGCTGG GAAGCGTCTG GCTGGACTAT GTGGGCTCCG 100
TGCTGGCTTG CCCTGCAAAT TGTGTCTGCA GCAAGACTGA GATCAATTGC 150
CGGCGGCCGG ACGATGGGAA CCTCTTCCCC CTCCTGGAAG GGCAGGATTC 200
AGGGAACAGC AATGGGAACG CCAATATCAA CATCACGGAC ATCTCAAGGA 250
ATATCACTTC CATAACATA GAGAACTGGC GCAGTCTTCA CACGCTCAAC 300
GCCGTGGACA TGGAGCTCTA CACCGGACTT CAAAAGCTGA CCATCAAGAA 350
CTCAGGACTT CGGAGCATTG AGCCCAGAGC CTTTGCCAAG AACCCCCATT 400
TGCGTTATAT AAACCTGTCA AGTAACCGGC TCACCACACT CTCGTGGCAG 450
CTCTTCCAGA CGCTGAGTCT TCGGGAATTG CAGTTGGAGC AGAACTTTTT 500
CAACTGCAGC TGTGACATCC GCTGGATGCA GCTCTGGCAG GAGCAGGGGG 550
AGGCCAAGCT CAACAGCCAG AACCTCTACT GCATCAATGC TGATGGCTCC 600
CAGCTTCCTC TCTTCCGCAT GAACATCAGT CAGTGTGACC TTCCTGAGAT 650
CAGCGTGAGC CACGTCAACC TGACCGTACG AGAGGGTGAC AATGCTGTTA 700
TCACTTGCAA TGGCTCTGGA TCACCCCTTC CTGATGTGGA CTGGATAGTC 750
ACTGGGCTGC AGTCCATCAA CACTCACCAG ACCAATCTGA ACTGGACCAA 800
TGTTTCATGC ATCAACTTGA CGCTGGTGAA TGTGACGAGT GAGGACAATG 850
GCTTCACCTT GACGTGCATT GCAGAGAACG TGGTGGGCAT GAGCAATGCC 900
AGTGTTGCCC TCACTGTCTA CTATCCCCCA CGTGTGGTGA GCCTGGAGGA 950
GCCTGAGCTG CGCCTGGAGC ACTGCATCGA GTTTGTGGTG CGTGGCAACC 1000
CCCCACCAAC GCTGCACTGG CTGCACAATG GGCAGCCTCT GCGGGAGTCC 1050
AAGATCATCC ATGTGGAATA CTACCAAGAG GGAGAGATTT CCGAGGGCTG 1100
CCTGCTCTTC AACAAGCCCA CCCACTACAA CAATGGCAAC TATACCCTCA 1150
TTGCCAAAAA CCCACTGGGC ACAGCCAACC AGACCATCAA TGGCCACTTC 1200
CTCAAGGAGC CCTTTCCAGA GAGCACGGAT AACTTTATCT TGTTTGACGA 1250

AGTGAGTCCC ACACCTCCTA TCACTGTGAC CCACAAACCA GAAGAAGACA 1300
 CTTTTGGGGT ATCCATAGCA GTTGGACTTG CTGCTTTTGC CTGTGTCCTG 1350
 TTGGTGGTTC TCTTCGTCAT GATCAACAAA TATGGTCGAC GGTCCAAATT 1400
 TGGAATGAAG GGTCCCGTGG CTGTCATCAG TGGTGAGGAG GACTCAGCCA 1450
 GCCCCTGCA CCACATCAAC CACGGCATCA CCACGCCCTC GTCCTGGAT 1500
 GCCGGGCCCC ACCTGTGGT CATTGGCATG ACTCGCATCC CTGTCATTGA 1550
 GAACCCCCAG TACTTCCGTC AGGGACACAA CTGCCACAAG CCGGACACGT 1600
 ATGTGCAGCA CATTAAAGAG AGAGACATCG TGCTGAAGCG AGAACTGGGT 1650
 GAGGGAGCCT TTGGAAAGGT CTTCTGGCC GAGTGCTACA ACCTCAGCCC 1700
 GACCAAGGAC AAGATGCTTG TGGCTGTGAA GGCCCTGAAG GATCCCACCC 1750
 TGGCTGCCCC GAAGGATTTC CAGAGGGAGG CCGAGCTGCT CACCAACCTG 1800
 CAGCATGAGC ACATTGTCAA GTTCTATGGA GTGTGCGGCG ATGGGGACCC 1850
 CCTCATCATG GTCTTTGAAT ACATGAAGCA TGGAGACCTG AATAAGTTCC 1900
 TCAGGGCCCA TGGGCCAGAT GCAATGATCC TTGTGGATGG ACAGCCACGC 1950
 CAGGCCAAGG GTGAGCTGGG GCTCTCCCAA ATGCTCCACA TTGCCAGTCA 2000
 GATCGCCTCG GGTATGGTGT ACCTGGCCTC CCAGCACTTT GTGCACCGAG 2050
 ACCTGGCCAC CAGGAACTGC CTGGTTGGAG CGAATCTGCT AGTGAAGATT 2100
 GGGGACTTCG GCATGTCCAG AGATGTCTAC AGCACGGATT ATTACAGGCT 2150
 CTTTAATCCA TCTGGAAATG ATTTTGTAT ATGGTGTGAG GTGGGAGGAC 2200
 ACACCATGCT CCCCATTCGC TGGATGCCTC CTGAAAGCAT CATGTACCGG 2250
 AAGTTCACTA CAGAGAGTGA TGTATGGAGC TTCGGGGTGA TCCTCTGGGA 2300
 GATCTTCACC TATGGAAAGC AGCCATGGTT CCAACTCTCA AACACGGAGG 2350
 TCATTGAGTG CATTACCCAA GGTCGTGTTT TGGAGCGGCC CCGAGTCTGC 2400
 CCCAAAGAGG TGTACGATGT CATGCTGGGG TGCTGGCAGA GGGAACCACA 2450
 GCAGCGGTTG AACATCAAGG AGATCTACAA AATCCTCCAT GCTTTGGGGA 2500
 AGGCCACCCC AATCTACCTG GACATTCTTG GCTAGTGGTG GCTGGTGGTC 2550
 ATGAATTCAT ACTCTGTTGC CTCCTCTCTC CCTGCCTCAC ATCTCCCTTC 2600
 CACCTCACAA CTCCTTCCAT CCTTGACTGA AGCGAACATC TTCATATAAA 2650
 CTCAAGTGCC TGCTACACAT ACAACACTGA AAAAAGGAAA AAAAAAGAAA 2700

AAAAAAAAAA ACCGC 2715

(2) INFORMATION FOR SEQ ID NO:6:

(i). SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 839 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Met	Asp	Val	Ser	Leu	Cys	Pro	Ala	Lys	Cys	Ser	Phe	Trp	Arg	Ile	
1				5					10					15	
Phe	Leu	Leu	Gly	Ser	Val	Trp	Leu	Asp	Tyr	Val	Gly	Ser	Val	Leu	
				20					25					30	
Ala	Cys	Pro	Ala	Asn	Cys	Val	Cys	Ser	Lys	Thr	Glu	Ile	Asn	Cys	
				35					40					45	
Arg	Arg	Pro	Asp	Asp	Gly	Asn	Leu	Phe	Pro	Leu	Leu	Glu	Gly	Gln	
				50					55					60	
Asp	Ser	Gly	Asn	Ser	Asn	Gly	Asn	Ala	Asn	Ile	Asn	Ile	Thr	Asp	
				65					70					75	
Ile	Ser	Arg	Asn	Ile	Thr	Ser	Ile	His	Ile	Glu	Asn	Trp	Arg	Ser	
				80					85					90	
Leu	His	Thr	Leu	Asn	Ala	Val	Asp	Met	Glu	Leu	Tyr	Thr	Gly	Leu	
				95					100					105	
Gln	Lys	Leu	Thr	Ile	Lys	Asn	Ser	Gly	Leu	Arg	Ser	Ile	Gln	Pro	
				110					115					120	
Arg	Ala	Phe	Ala	Lys	Asn	Pro	His	Leu	Arg	Tyr	Ile	Asn	Leu	Ser	
				125					130					135	
Ser	Asn	Arg	Leu	Thr	Thr	Leu	Ser	Trp	Gln	Leu	Phe	Gln	Thr	Leu	
				140					145					150	
Ser	Leu	Arg	Glu	Leu	Gln	Leu	Glu	Gln	Asn	Phe	Phe	Asn	Cys	Ser	
				155					160					165	
Cys	Asp	Ile	Arg	Trp	Met	Gln	Leu	Trp	Gln	Glu	Gln	Gly	Glu	Ala	
				170					175					180	
Lys	Leu	Asn	Ser	Gln	Asn	Leu	Tyr	Cys	Ile	Asn	Ala	Asp	Gly	Ser	
				185					190					195	
Gln	Leu	Pro	Leu	Phe	Arg	Met	Asn	Ile	Ser	Gln	Cys	Asp	Leu	Pro	
				200					205					210	
Glu	Ile	Ser	Val	Ser	His	Val	Asn	Leu	Thr	Val	Arg	Glu	Gly	Asp	
				215					220					225	

Asn Ala Val Ile Thr Cys Asn Gly Ser Gly Ser Pro Leu Pro Asp	230	235	240
Val Asp Trp Ile Val Thr Gly Leu Gln Ser Ile Asn Thr His Gln	245	250	255
Thr Asn Leu Asn Trp Thr Asn Val His Ala Ile Asn Leu Thr Leu	260	265	270
Val Asn Val Thr Ser Glu Asp Asn Gly Phe Thr Leu Thr Cys Ile	275	280	285
Ala Glu Asn Val Val Gly Met Ser Asn Ala Ser Val Ala Leu Thr	290	295	300
Val Tyr Tyr Pro Pro Arg Val Val Ser Leu Glu Glu Pro Glu Leu	305	310	315
Arg Leu Glu His Cys Ile Glu Phe Val Val Arg Gly Asn Pro Pro	320	325	330
Pro Thr Leu His Trp Leu His Asn Gly Gln Pro Leu Arg Glu Ser	335	340	345
Lys Ile Ile His Val Glu Tyr Tyr Gln Glu Gly Glu Ile Ser Glu	350	355	360
Gly Cys Leu Leu Phe Asn Lys Pro Thr His Tyr Asn Asn Gly Asn	365	370	375
Tyr Thr Leu Ile Ala Lys Asn Pro Leu Gly Thr Ala Asn Gln Thr	380	385	390
Ile Asn Gly His Phe Leu Lys Glu Pro Phe Pro Glu Ser Thr Asp	395	400	405
Asn Phe Ile Leu Phe Asp Glu Val Ser Pro Thr Pro Pro Ile Thr	410	415	420
Val Thr His Lys Pro Glu Glu Asp Thr Phe Gly Val Ser Ile Ala	425	430	435
Val Gly Leu Ala Ala Phe Ala Cys Val Leu Leu Val Val Leu Phe	440	445	450
Val Met Ile Asn Lys Tyr Gly Arg Arg Ser Lys Phe Gly Met Lys	455	460	465
Gly Pro Val Ala Val Ile Ser Gly Glu Glu Asp Ser Ala Ser Pro	470	475	480
Leu His His Ile Asn His Gly Ile Thr Thr Pro Ser Ser Leu Asp	485	490	495
Ala Gly Pro Asp Thr Val Val Ile Gly Met Thr Arg Ile Pro Val	500	505	510

Ile Glu Asn Pro	Gln Tyr Phe Arg Gln Gly His Asn Cys His Lys	515	520	525
Pro Asp Thr Tyr	Val Gln His Ile Lys Arg Arg Asp Ile Val Leu	530	535	540
Lys Arg Glu Leu	Gly Glu Gly Ala Phe Gly Lys Val Phe Leu Ala	545	550	555
Glu Cys Tyr Asn	Leu Ser Pro Thr Lys Asp Lys Met Leu Val Ala	560	565	570
Val Lys Ala Leu	Lys Asp Pro Thr Leu Ala Ala Arg Lys Asp Phe	575	580	585
Gln Arg Glu Ala	Glu Leu Leu Thr Asn Leu Gln His Glu His Ile	590	595	600
Val Lys Phe Tyr	Gly Val Cys Gly Asp Gly Asp Pro Leu Ile Met	605	610	615
Val Phe Glu Tyr	Met Lys His Gly Asp Leu Asn Lys Phe Leu Arg	620	625	630
Ala His Gly Pro	Asp Ala Met Ile Leu Val Asp Gly Gln Pro Arg	635	640	645
Gln Ala Lys Gly	Glu Leu Gly Leu Ser Gln Met Leu His Ile Ala	650	655	660
Ser Gln Ile Ala	Ser Gly Met Val Tyr Leu Ala Ser Gln His Phe	665	670	675
Val His Arg Asp	Leu Ala Thr Arg Asn Cys Leu Val Gly Ala Asn	680	685	690
Leu Leu Val Lys	Ile Gly Asp Phe Gly Met Ser Arg Asp Val Tyr	695	700	705
Ser Thr Asp Tyr	Tyr Arg Leu Phe Asn Pro Ser Gly Asn Asp Phe	710	715	720
Cys Ile Trp Cys	Glu Val Gly Gly His Thr Met Leu Pro Ile Arg	725	730	735
Trp Met Pro Pro	Glu Ser Ile Met Tyr Arg Lys Phe Thr Thr Glu	740	745	750
Ser Asp Val Trp	Ser Phe Gly Val Ile Leu Trp Glu Ile Phe Thr	755	760	765
Tyr Gly Lys Gln	Pro Trp Phe Gln Leu Ser Asn Thr Glu Val Ile	770	775	780
Glu Cys Ile Thr	Gln Gly Arg Val Leu Glu Arg Pro Arg Val Cys	785	790	795

Pro Lys Glu Val Tyr Asp Val Met Leu Gly Cys Trp Gln Arg Glu
800 805 810

Pro Gln Gln Arg Leu Asn Ile Lys Glu Ile Tyr Lys Ile Leu His
815 820 825

Ala Leu Gly Lys Ala Thr Pro Ile Tyr Leu Asp Ile Leu Gly
830 835 839

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1858 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

GGATCCGCGT CGGAGATGGA TGTCTCTCTT TGCCAGCCA AGTGTAGTTT 50
CTGGCGGATT TTCTTGCTGG GAAGCGTCTG GCTGGACTAT GTGGGCTCCG 100
TGCTGGCTTG CCCTGCAAAT TGTGTCTGCA GCAAGACTGA GATCAATTGC 150
CGGCGGCCGG ACGATGGGAA CCTCTTCCCC CTCCTGGAAG GGCAGGATTC 200
AGGGAACAGC AATGGGAACG CCAATATCAA CATCACGGAC ATCTCAAGGA 250
ATATCACTTC CATAACATA GAGAACTGGC GCAGTCTTCA CAGCTCAAC 300
GCCGTGGACA TGGAGCTCTA CACCGGACTT CAAAAGCTGA CCATCAAGAA 350
CTCAGGACTT CGGAGCATTC AGCCCAGAGC CTTTGCCAAG AACCCCCATT 400
TGCGTTATAT AAACCTGTCA AGTAACCGGC TCACCACACT CTCGTGGCAG 450
CTCTTCCAGA CGCTGAGTCT TCGGGAATTG CAGTTGGAGC AGAACTTTTT 500
CAACTGCAGC TGTGACATCC GCTGGATGCA GCTCTGGCAG GAGCAGGGGG 550
AGGCCAAGCT CAACAGCCAG AACCTCTACT GCATCAATGC TGATGGCTCC 600
CAGCTTCCTC TCTTCCGCAT GAACATCAGT CAGTGTGACC TTCCTGAGAT 650
CAGCGTGAGC CACGTCAACC TGACCGTACG AGAGGGTGAC AATGCTGTTA 700
TCACTTGCAA TGGCTCTGGA TCACCCCTTC CTGATGTGGA CTGGATAGTC 750
ACTGGGCTGC AGTCCATCAA CACTCACCAG ACCAATCTGA ACTGGACCAA 800
TGTTTCATGCC ATCAACTTGA CGCTGGTGAA TGTGACGAGT GAGGACAATG 850
GCTTACCCCT GACGTGCATT GCAGAGAACG TGGTGGGCAT GAGCAATGCC 900
AGTGTTGCCC TCACTGTCTA CTATCCCCCA CGTGTGGTGA GCCTGGAGGA 950

GCCTGAGCTG CGCCTGGAGC ACTGCATCGA GTTTGTGGTG CGTGGCAACC 1000
 CCCCACCAAC GCTGCACTGG CTGCACAATG GGCAGCCTCT GCGGGAGTCC 1050
 AAGATCATCC ATGTGGAATA CTACCAAGAG GGAGAGATTT CCGAGGGCTG 1100
 CCTGCTCTTC AACAAGCCCA CCCACTACAA CAATGGCAAC TATACCCTCA 1150
 TTGCCAAAAA CCCACTGGGC ACAGCCAACC AGACCATCAA TGGCCACTTC 1200
 CTCAAGGAGC CCTTTCCAGA GAGCACGGAT AACTTTATCT TGTTTGACGA 1250
 AGTGAGTCCC ACACCTCCTA TCACTGTGAC CCACAAACCA GAAGAAGACA 1300
 CTTTTGGGGT ATCCATAGCA GTTGGACTTG CTGCTTTTGC CTGTGTCCTG 1350
 TTGGTGGTTC TCTTCGTCAT GATCAACAAA TATGGTCGAC GGTCCAAATT 1400
 TGGAATGAAG GGTCCCGTGG CTGTCATCAG TGGTGAGGAG GACTCAGCCA 1450
 GCCCACTGCA CCAATCAAC CACGGCATCA CCACGCCCTC GTCACTGGAT 1500
 GCCGGGCCCCG AACTGTGGT CATTGGCATG ACTCGCATCC CTGTCATTGA 1550
 GAACCCCCAG TACTTCCGTC AGGGACACAA CTGCCACAAG CCGGACACGT 1600
 GGGTCTTTTC AAACATAGAC AATCATGGGA TATTAACTT GAAGGACAAT 1650
 AGAGATCATC TAGTCCCATC AACTCACTAT ATATATGAGG AACCTGAGGT 1700
 CCAGAGTGGG GAAGTGTCTT ACCCAAGGTC ACATGGTTTC AGAGAAATTA 1750
 TGTTGAATCC AATAAGCCTT CCCGGACATT CCAAGCCTCT TAACCATGGC 1800
 ATCTATGTTG AGGATGTCAA TGTTTATTTT AGCAAAGGAC GTCATGGCCT 1850
 TTAAAAAC 1858

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 612 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Met	Asp	Val	Ser	Leu	Cys	Pro	Ala	Lys	Cys	Ser	Phe	Trp	Arg	Ile
1				5				10					15	
Phe	Leu	Leu	Gly	Ser	Val	Trp	Leu	Asp	Tyr	Val	Gly	Ser	Val	Leu
			20					25					30	
Ala	Cys	Pro	Ala	Asn	Cys	Val	Cys	Ser	Lys	Thr	Glu	Ile	Asn	Cys
			35					40					45	

Arg Arg Pro Asp Asp Gly Asn Leu Phe Pro Leu Leu Glu Gly Gln	50	55	60
Asp Ser Gly Asn Ser Asn Gly Asn Ala Asn Ile Asn Ile Thr Asp	65	70	75
Ile Ser Arg Asn Ile Thr Ser Ile His Ile Glu Asn Trp Arg Ser	80	85	90
Leu His Thr Leu Asn Ala Val Asp Met Glu Leu Tyr Thr Gly Leu	95	100	105
Gln Lys Leu Thr Ile Lys Asn Ser Gly Leu Arg Ser Ile Gln Pro	110	115	120
Arg Ala Phe Ala Lys Asn Pro His Leu Arg Tyr Ile Asn Leu Ser	125	130	135
Ser Asn Arg Leu Thr Thr Leu Ser Trp Gln Leu Phe Gln Thr Leu	140	145	150
Ser Leu Arg Glu Leu Gln Leu Glu Gln Asn Phe Phe Asn Cys Ser	155	160	165
Cys Asp Ile Arg Trp Met Gln Leu Trp Gln Glu Gln Gly Glu Ala	170	175	180
Lys Leu Asn Ser Gln Asn Leu Tyr Cys Ile Asn Ala Asp Gly Ser	185	190	195
Gln Leu Pro Leu Phe Arg Met Asn Ile Ser Gln Cys Asp Leu Pro	200	205	210
Glu Ile Ser Val Ser His Val Asn Leu Thr Val Arg Glu Gly Asp	215	220	225
Asn Ala Val Ile Thr Cys Asn Gly Ser Gly Ser Pro Leu Pro Asp	230	235	240
Val Asp Trp Ile Val Thr Gly Leu Gln Ser Ile Asn Thr His Gln	245	250	255
Thr Asn Leu Asn Trp Thr Asn Val His Ala Ile Asn Leu Thr Leu	260	265	270
Val Asn Val Thr Ser Glu Asp Asn Gly Phe Thr Leu Thr Cys Ile	275	280	285
Ala Glu Asn Val Val Gly Met Ser Asn Ala Ser Val Ala Leu Thr	290	295	300
Val Tyr Tyr Pro Pro Arg Val Val Ser Leu Glu Glu Pro Glu Leu	305	310	315
Arg Leu Glu His Cys Ile Glu Phe Val Val Arg Gly Asn Pro Pro	320	325	330

Pro Thr Leu His	Trp Leu His Asn Gly Gln	Pro Leu Arg Glu Ser
335	340	345
Lys Ile Ile His	Val Glu Tyr Tyr Gln Glu Gly Glu Ile Ser Glu	
350	355	360
Gly Cys Leu Leu	Phe Asn Lys Pro Thr His Tyr Asn Asn Gly Asn	
365	370	375
Tyr Thr Leu Ile	Ala Lys Asn Pro Leu Gly Thr Ala Asn Gln Thr	
380	385	390
Ile Asn Gly His	Phe Leu Lys Glu Pro Phe Pro Glu Ser Thr Asp	
395	400	405
Asn Phe Ile Leu	Phe Asp Glu Val Ser Pro Thr Pro Pro Ile Thr	
410	415	420
Val Thr His Lys	Pro Glu Glu Asp Thr Phe Gly Val Ser Ile Ala	
425	430	435
Val Gly Leu Ala	Ala Phe Ala Cys Val Leu Leu Val Val Leu Phe	
440	445	450
Val Met Ile Asn	Lys Tyr Gly Arg Arg Ser Lys Phe Gly Met Lys	
455	460	465
Gly Pro Val Ala	Val Ile Ser Gly Glu Glu Asp Ser Ala Ser Pro	
470	475	480
Leu His His Ile	Asn His Gly Ile Thr Thr Pro Ser Ser Leu Asp	
485	490	495
Ala Gly Pro Asp	Thr Val Val Ile Gly Met Thr Arg Ile Pro Val	
500	505	510
Ile Glu Asn Pro	Gln Tyr Phe Arg Gln Gly His Asn Cys His Lys	
515	520	525
Pro Asp Thr Trp	Val Phe Ser Asn Ile Asp Asn His Gly Ile Leu	
530	535	540
Asn Leu Lys Asp	Asn Arg Asp His Leu Val Pro Ser Thr His Tyr	
545	550	555
Ile Tyr Glu Glu	Pro Glu Val Gln Ser Gly Glu Val Ser Tyr Pro	
560	565	570
Arg Ser His Gly	Phe Arg Glu Ile Met Leu Asn Pro Ile Ser Leu	
575	580	585
Pro Gly His Ser	Lys Pro Leu Asn His Gly Ile Tyr Val Glu Asp	
590	595	600
Val Asn Val Tyr	Phe Ser Lys Gly Arg His Gly Phe	
605	610	612

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 790 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Met	Leu	Arg	Gly	Gly	Arg	Arg	Gly	Gln	Leu	Gly	Trp	His	Ser	Trp	
1				5					10					15	
Ala	Ala	Gly	Pro	Gly	Ser	Leu	Leu	Ala	Trp	Leu	Ile	Leu	Ala	Ser	
				20					25					30	
Ala	Gly	Ala	Ala	Pro	Cys	Pro	Asp	Ala	Cys	Cys	Pro	His	Gly	Ser	
				35					40					45	
Ser	Gly	Leu	Arg	Cys	Thr	Arg	Asp	Gly	Ala	Leu	Asp	Ser	Leu	His	
				50					55					60	
His	Leu	Pro	Gly	Ala	Glu	Asn	Leu	Thr	Glu	Leu	Tyr	Ile	Glu	Asn	
				65					70					75	
Gln	Gln	His	Leu	Gln	His	Leu	Glu	Leu	Arg	Asp	Leu	Arg	Gly	Leu	
				80					85					90	
Gly	Glu	Leu	Arg	Asn	Leu	Thr	Ile	Val	Lys	Ser	Gly	Leu	Arg	Phe	
				95					100					105	
Val	Ala	Pro	Asp	Ala	Phe	His	Phe	Thr	Pro	Arg	Leu	Ser	Arg	Leu	
				110					115					120	
Asn	Leu	Ser	Phe	Asn	Ala	Leu	Glu	Ser	Leu	Ser	Trp	Lys	Thr	Val	
				125					130					135	
Gln	Gly	Leu	Ser	Leu	Gln	Glu	Leu	Val	Leu	Ser	Gly	Asn	Pro	Leu	
				140					145					150	
His	Cys	Ser	Cys	Ala	Leu	Arg	Trp	Leu	Gln	Arg	Trp	Glu	Glu	Glu	
				155					160					165	
Gly	Leu	Gly	Gly	Val	Pro	Glu	Gln	Lys	Leu	Gln	Cys	His	Gly	Gln	
				170					175					180	
Gly	Pro	Leu	Ala	His	Met	Pro	Asn	Ala	Ser	Cys	Gly	Val	Pro	Thr	
				185					190					195	
Leu	Lys	Val	Gln	Val	Pro	Asn	Ala	Ser	Val	Asp	Val	Gly	Asp	Asp	
				200					205					210	
Val	Leu	Leu	Arg	Cys	Gln	Val	Glu	Gly	Arg	Gly	Leu	Glu	Gln	Ala	
				215					220					225	
Gly	Trp	Ile	Leu	Thr	Glu	Leu	Glu	Gln	Ser	Ala	Thr	Val	Met	Lys	
				230					235					240	

Ser Gly Gly Leu	Pro Ser Leu Gly Leu	Thr Leu Ala Asn Val Thr
245	250	255
Ser Asp Leu Asn Arg	Lys Asn Leu Thr Cys Trp Ala Glu Asn Asp	
260	265	270
Val Gly Arg Ala Glu	Val Ser Val Gln Val Asn Val Ser Phe Pro	
275	280	285
Ala Ser Val Gln Leu	His Thr Ala Val Glu Met His His Trp Cys	
290	295	300
Ile Pro Phe Ser Val	Asp Gly Gln Pro Ala Pro Ser Leu Arg Trp	
305	310	315
Leu Phe Asn Gly Ser	Val Leu Asn Glu Thr Ser Phe Ile Phe Thr	
320	325	330
Glu Phe Leu Glu Pro	Ala Ala Asn Glu Thr Val Arg His Gly Cys	
335	340	345
Leu Arg Leu Asn Gln	Pro Thr His Val Asn Asn Gly Asn Tyr Thr	
350	355	360
Leu Leu Ala Ala Asn	Pro Phe Gly Gln Ala Ser Ala Ser Ile Met	
365	370	375
Ala Ala Phe Met Asp	Asn Pro Phe Glu Phe Asn Pro Glu Asp Pro	
380	385	390
Ile Pro Asp Thr Asn	Ser Thr Ser Gly Asp Pro Val Glu Lys Lys	
395	400	405
Asp Glu Thr Pro Phe	Gly Val Ser Val Ala Val Gly Leu Ala Val	
410	415	420
Phe Ala Cys Leu Phe	Leu Ser Thr Leu Leu Leu Val Leu Asn Lys	
425	430	435
Cys Gly Arg Arg Asn	Lys Phe Gly Ile Asn Arg Pro Ala Val Leu	
440	445	450
Ala Pro Glu Asp Gly	Leu Ala Met Ser Leu His Phe Met Thr Leu	
455	460	465
Gly Gly Ser Ser Leu	Ser Pro Thr Glu Gly Lys Gly Ser Gly Leu	
470	475	480
Gln Gly His Ile Ile	Glu Asn Pro Gln Tyr Phe Ser Asp Ala Cys	
485	490	495
Val His His Ile Lys	Arg Arg Asp Ile Val Leu Lys Trp Glu Leu	
500	505	510
Gly Glu Gly Ala Phe	Gly Lys Val Phe Leu Ala Glu Cys His Asn	
515	520	525

Leu	Leu	Pro	Glu	Gln	Asp	Lys	Met	Leu	Val	Ala	Val	Lys	Ala	Leu	530	535	540
Lys	Glu	Ala	Ser	Glu	Ser	Ala	Arg	Gln	Asp	Phe	Gln	Arg	Glu	Ala	545	550	555
Glu	Leu	Leu	Thr	Met	Leu	Gln	His	Gln	His	Ile	Val	Arg	Phe	Phe	560	565	570
Gly	Val	Cys	Thr	Glu	Gly	Arg	Pro	Leu	Leu	Met	Val	Phe	Glu	Tyr	575	580	585
Met	Arg	His	Gly	Asp	Leu	Asn	Arg	Phe	Leu	Arg	Ser	His	Gly	Pro	590	595	600
Asp	Ala	Lys	Leu	Leu	Ala	Gly	Gly	Glu	Asp	Val	Ala	Pro	Gly	Pro	605	610	615
Leu	Gly	Leu	Gly	Gln	Leu	Leu	Ala	Val	Ala	Ser	Gln	Val	Ala	Ala	620	625	630
Gly	Met	Val	Tyr	Leu	Ala	Gly	Leu	His	Phe	Val	His	Arg	Asp	Leu	635	640	645
Ala	Thr	Arg	Asn	Cys	Leu	Val	Gly	Gln	Gly	Leu	Val	Val	Lys	Ile	650	655	660
Gly	Asp	Phe	Gly	Met	Ser	Arg	Asp	Ile	Tyr	Ser	Thr	Asp	Tyr	Tyr	665	670	675
Arg	Val	Gly	Gly	Arg	Thr	Met	Leu	Pro	Ile	Arg	Trp	Met	Pro	Pro	680	685	690
Glu	Ser	Ile	Leu	Tyr	Arg	Lys	Phe	Thr	Thr	Glu	Ser	Asp	Val	Trp	695	700	705
Ser	Phe	Gly	Val	Val	Leu	Trp	Glu	Ile	Phe	Thr	Tyr	Gly	Lys	Gln	710	715	720
Pro	Trp	Tyr	Gln	Leu	Ser	Asn	Thr	Glu	Ala	Ile	Asp	Cys	Ile	Thr	725	730	735
Gln	Gly	Arg	Glu	Leu	Glu	Arg	Pro	Arg	Ala	Cys	Pro	Pro	Glu	Val	740	745	750
Tyr	Ala	Ile	Met	Arg	Gly	Cys	Trp	Gln	Arg	Glu	Pro	Gln	Gln	Arg	755	760	765
His	Ser	Ile	Lys	Asp	Val	His	Ala	Arg	Leu	Gln	Ala	Leu	Ala	Gln	770	775	780
Ala	Pro	Pro	Val	Tyr	Leu	Asp	Val	Leu	Gly						785	790	

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

TGYGAYATHA TGTGGYTNAAC 23

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

TGGATGCARY TNTGGCARCA RCA 23

(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

YTCRTCYYTN CCRTAYTCRT T 21

(2) INFORMATION FOR SEQ ID NO:13:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

CCYTCYTGRAT ARTAYTCNAC GTG 23

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

CACGTCAACA ACGGCAACTA CA 22

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

GGAAGGATGA GAAACAGATT TCTGC 25

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

CATCAATGGC CACTTCCTCA AGG 23

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

AGGTGTTTCG TCCTTCTTCT CC 22

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

GAGATGTGCC CGACCGTTG TATC 24

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

CACAGTGATA GGAGGTGTGG GA 22

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

GGATGTGGCT CCAGGCCCC 19

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

GGGCAACCCG CCCACGGAA 19

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

ACGCCAGGCC AAGGGTGAG 19

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: Nucleic Acid

- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

TAACCACTCC CAGCCCCTGG 20

(2) INFORMATION FOR SEQ ID NO:24:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

TTGGTGGCCT CCAGCGGCAG 20

(2) INFORMATION FOR SEQ ID NO:25:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

AATTCATGAC CACCAGCCAC CA 22

(2) INFORMATION FOR SEQ ID NO:26:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

GCTCCTCGGG ACTGCGATGC 20

(2) INFORMATION FOR SEQ ID NO:27:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

ATGTCGCCCT GGCCGAGGTG GCAT 24

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

AAGCTCAACA GCCAGAACCT C 21

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

CAGCTCTGTG AGGATCCAGC C 21

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

CCGACCGGTT TTATCAGTGA C 21

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 base pairs
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

ATGATCTTGG ACTCCCGCAG AGG 23

(2) INFORMATION FOR SEQ ID NO:32:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

CTTGGCCAAG GCATCTCCGG T 21

(2) INFORMATION FOR SEQ ID NO:33:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

ATGTGCAGCA CATTAAGAGG A 21

(2) INFORMATION FOR SEQ ID NO:34:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

TTATACACAG GCTTAAGCCA TCCA 24

(2) INFORMATION FOR SEQ ID NO:35:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 19 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

AGGAGGCATC CAGCGAATG 19

(2) INFORMATION FOR SEQ ID NO:36:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 9 amino acids
 - (B) TYPE: Amino Acid
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

Glu Ser Thr Asp Asn Phe Ile Leu Phe
1 5 9

(2) INFORMATION FOR SEQ ID NO:37:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

Leu Phe Asn Pro Ser Gly Asn Asp Phe Cys Ile Trp Cys Glu
1 5 10 14

(2) INFORMATION FOR SEQ ID NO:38:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

TCTCCTTCTC GCCGGTGG 18

(2) INFORMATION FOR SEQ ID NO:39:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 6 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

Ser Pro Ser Arg Arg Trp
1 5 6

(2) INFORMATION FOR SEQ ID NO:40:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

Phe Val Leu Phe His Lys Ile Pro Leu Asp Gly
1 5 10 11

(2) INFORMATION FOR SEQ ID NO:41:

- (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 84 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

Trp	Val	Phe	Ser	Asn	Ile	Asp	Asn	His	Gly	Ile	Leu	Asn	Leu	Lys
1				5					10					15
Asp	Asn	Arg	Asp	His	Leu	Val	Pro	Ser	Thr	His	Tyr	Ile	Tyr	Glu
				20					25					30
Glu	Pro	Glu	Val	Gln	Ser	Gly	Glu	Val	Ser	Tyr	Pro	Arg	Ser	His
				35					40					45
Gly	Phe	Arg	Glu	Ile	Met	Leu	Asn	Pro	Ile	Ser	Leu	Pro	Gly	His
				50					55					60
Ser	Lys	Pro	Leu	Asn	His	Gly	Ile	Tyr	Val	Glu	Asp	Val	Asn	Val
				65					70					75
Tyr	Phe	Ser	Lys	Gly	Arg	His	Gly	Phe						
				80				84						

8

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